

METHODOLOGY AND ASSUMPTIONS

OPERATING REVENUE AND COST ESTIMATES

This appendix describes the methodology and assumptions behind calculation of WSF operating revenues (sources of funds) and costs (uses of funds).

SOURCES OF FUNDS

Farebox Revenue

The largest source of operating revenues is revenue from fares paid by passengers and vehicles.

Farebox revenue is calculated by multiplying the ridership for each route by the average weighted fare for each route. Ridership figures are based on projected annual ridership analysis (see Ridership Methodology).

Average weighted fares (2004) are calculated with the following steps:

1. *One-way fares* were documented for each route by base and peak season for the following categories:

Vehicle Fares	Passenger Fares
Vehicle regular fare	Passenger regular fare
Vehicle frequent user	Passenger frequent user
Oversize (20-49')	Passenger monthly pass
Oversize (50'+)	Youth
Senior	Senior
Motorcycle regular fare	Bicycle regular fare
Motorcycle frequent user	

The fare for oversize vehicles 20-49' is a weighted average of the fares for the following categories: 20-30ft (81%), 30-40ft (15%), and 40-50ft (4%). Similarly, the fare for oversize vehicles 50'+ is a weighted average of the fares for the following categories: 40-60ft (72%), 60-70ft (16%), and 70-80ft (12%).

2. *Total revenues* for each route (by the categories listed above) were calculated by multiplying the actual ridership figures from FY 2004 (July 1, 2003 to June 30, 2004) by 2004 one-way fares (determined in Step 1 above).
3. The *weighted average fare* for each route (by base and peak seasons) was calculated by dividing the sum of total revenues for each vehicle and passenger category by the total 2004 ridership for that route. This was calculated for vehicles and passengers.



WASHINGTON STATE FERRIES

4. In turn, the *weighted annual average fares* were calculated for each route: by dividing the total revenues for base and peak seasons by the sum of ridership for base and peak season.

Average fares were increased by 6% in May 2005 and 2006. In the baseline analysis annual fare increases equal to 2.5% were assumed to be implemented each May beginning in 2007. To be conservative, the revenue estimates from passenger fares are also discounted by 0.20% annually due to the increasing number of commuters, many of which will be using higher proportion of passenger passes and other discounts.

Miscellaneous Revenue (Concessions, etc.)

Miscellaneous revenue estimates were taken from the WSF's *Miscellaneous Revenue Forecast* for 2006-2021, dated February 2006, and assumed to continue to grow at the an average annual rate of increase of 3.7% from 2021 to 2030.

The following are the key assumptions underlying the miscellaneous revenue forecast:

- ❑ Assume currents staff levels and a six year implementation plan for new, more speculative revenues, such as advertising.
- ❑ Projected revenues generally tied to a percentage of gross sales concession contracts without minimum payment requirements.
- ❑ Ridership and CPI adjustments from WSF Revenue and Ridership Projection Forecast – Fiscal Years 2006-2021 (Scenario F).
- ❑ Average retail sales per square foot from the Urban Land Institute 2002 & 2004 Dollars and Cents of Shopping Centers (community shopping centers) were used in developing retail projections. Average sales per square foot are retail concept specific. Sales per square foot were increased 30% to reflect the impact of the transportation market at WSF facilities. Expected retail sales are adjusted as practical for results to date and concessionaire's estimates.
- ❑ Advertising revenue subject to completion of Advertising RFP scheduled to be released in March 2006. Revenue is based on estimates from WSF Advertising RFI (2001) and discussions with potential proposers.
- ❑ The estimates are speculative and are based on indices, concessionaire input and limited financial history.
- ❑ Some revenue timing is dependant upon project completion. Forecast includes new services or retail areas (i.e. new terminal construction) where completion of a planned RFP or construction project is necessary before revenue can be realized.
- ❑ Discretionary ridership is secondary to commuter ridership. Schedules can not be altered and service to commuter market can not be disrupted.
- ❑ Labor harmony assumed.
- ❑ No significant vacancies or service closures will occur.

APPENDIX E: OPERATING COST AND REVENUE ASSUMPTIONS

Tax Revenues for Operations

State Taxes, Fees and Other Revenue

Puget Sound Ferry Operations Account, authorized by RCW 47.60.530 (created in 1972), provides tax support for operations and maintenance of Washington State Ferries.

SOURCES OF FUNDS

- ❑ Motor fuel tax (2.3283% of net gas tax collections or 0.54 cents of 23 cent dedicated gas tax)
- ❑ Motor vehicle registration fee (\$2.02 per new registration, \$0.93 per renewal)
- ❑ Combined licensing fees (1.411% of collections)
- ❑ 80% of treasury deposit earnings
- ❑ Concessions and other miscellaneous revenue

Capron Transfer Funds

In the 1930s, the Legislature instituted Capron Refunds law, requiring all the gas tax and motor vehicle excise tax money collected in counties containing neither state highways nor fixed connections with the mainland to be returned to the county and shared with cities. The only counties to receive Capron Refunds are San Juan and Island counties; the former is allowed to keep 100 percent of gas taxes and motor vehicle registration fees, and the latter 50 percent.

Per 2006 Legislative direction, the fuel taxes and fees collected from the additional gas taxes levied in 2003 and 2005 (2003 Nickel Package and 2005 Transportation Partnership Account) in San Juan and Island counties would not be refunded to these counties as per the Capron Refunds law, but instead would be made available for WSF operations.

Capron Transfer Funds estimates were taken from the numbers prepared by Washington DOT's Financial Planning to account for the new changes from the 2006 legislative session. The DOT numbers are for 2006-2021, and are assumed to continue at the same average annual rate of increase of 1.2% thereafter.

Other Taxes

The current biennium includes other state tax support for operations from the Motor Vehicle Account and from multimodal taxes and fees. Since the loss of MVET taxes, the Motor Vehicle Account taxes have been the source for the necessary additional state support needed to balance WSF's operating budget. This is assumed to continue until there is enough total revenue from fares, concessions and WSF-dedicated taxes and fees to cover 100% of operations.

The multimodal taxes are used to support the passenger-only services from Vashon to Seattle. Since the Legislature has directed WSF to transfer this service to another operator by July 1, 2007, it is assumed that support from these taxes will end at that time.

USES OF FUNDS

Uses of funds comprise such operating expenditures as vessel (deck labor, engine labor, fuel, and other non-labor costs), terminal, vessel maintenance, and management & support costs. Each category is described below.



WASHINGTON STATE FERRIES

Vessel Costs

There are several components of vessel costs: deck labor, engine labor, fuel, and other non-labor costs. To better match service supply to ridership demand, most routes employ different schedules throughout the year; therefore, the model was designed to calculate operating costs by season, ultimately adding the four seasons together to generate the total annual operating costs. The following are the seasons and their start and end dates for 2005:

- ❑ Winter (start 12/26/04, end 3/19/05)
- ❑ Spring (start 3/20/05, end 6/11/05)
- ❑ Summer (start 6/12/05, end 9/17/05)
- ❑ Fall (start 9/18/05, end 12/25/05)

The 2004 service for each route (for each season) was documented by recording the number of vessels and their corresponding vessel classes for each route, as well as the length of the daily shift for each vessel (most commonly in 8, 16, or 24-hour segments). The schedule for many routes is often different on weekdays and weekends, so the model also reflects the shifts by weekdays and weekends.

Exhibit 1
Sample Winter Schedule for Selected Routes, including Vessel assignments and Shifts by Weekday and Weekend, 2005

	FY05		
	Shifts		
	Vessel	Week	Wknd
Pt. Defiance-Tahlequah	v(60)	16	16
	None	0	0
Fauntleroy-Vashon-Southworth	v(87)	24	0
	v(87)	16	16
	v(124)	16	24

Next, the total seasonal service hours for each vessel in service were calculated by multiplying scheduled shift hours for weekday and for weekend by the number of weekdays and weekend days per season (Exhibit 2 below).

Exhibit 2
Total Hours per Vessel for Winter Season for Selected Routes, 2005

	FY05		
	Shifts		
	Vessel	Week	Wknd
Pt. Defiance-Tahlequah	v(60)	960	384
	None	0	0
Fauntleroy-Vashon-Southworth	v(87)	1440	0
	v(87)	960	384
	v(124)	960	576

APPENDIX E: OPERATING COST AND REVENUE ASSUMPTIONS

Exhibit 3 below demonstrates the count of days per winter season, used in determining total service hours for each vessel. Similar tables were used for the other three seasons.

Exhibit 3 Count of Days per Winter Season

Days Per Winter Season:

Week	Weekend
60	24

Past base year 2005, service changes and/or expansions are triggered by analysis of the years when vehicle and/or passenger boat-waits are likely to exceed their WTC-mandated limits. These service changes are entered in the model and are factored into the calculation of service hours for each route.

Deck Labor Costs

Deck labor costs were calculated by multiplying the deck labor rate per hour (from February 2006 WSF forecast) for each vessel class by the estimated service hours for each vessel, and then summing up the costs for all vessels on the route and all seasons to come up with one annual cost figure for that route. For costs beyond the base year (2005), inflationary increases were incorporated into the model.

Engine Labor Costs (excl. maintenance)

Engine labor is paid for in 24-hour increments, independent of the actual shift length of that vessel. Thus, engine labor costs were calculated by multiplying the engine labor rate per 24 hours (from February 2006 WSF forecast) for each vessel class by the number of days in service for each season, and then summing up the costs for all vessels on the route and all seasons to come up with one annual cost figure for that route. For costs beyond the base year (2005), inflationary increases were incorporated into the model.

Fuel Costs

Fuel costs were calculated by multiplying the fuel cost rate per hour (based on February 2006 WSF estimate) for each vessel class by the estimated service hours for each vessel for each season, and then summing up the costs for all vessels on the route and all seasons to come up with one annual cost figure for that route. For costs beyond the base year (2005), fuel cost changes are based on February 2006 Diesel Index forecast.

Other Non-Labor Costs

Other non-labor costs are estimated as a flat rate per hour; it is the same amount across all vessel classes. Other non-labor costs were calculated by multiplying the rate per hour (from February 2006 WSF forecast) by the estimated service hours for each vessel for each season, and then summing up the costs for all vessels on the route and all seasons to come up with one annual cost figure for that route. For costs beyond base year (2005), inflationary increases were incorporated into the model.

Terminal Costs

Terminal costs are assumed to be 30% fixed and 70% variable. WSF terminals were grouped by four service areas:

- ❑ San Juans/International
- ❑ North Sound
- ❑ Central Sound



WASHINGTON STATE FERRIES

- South Sound

Exhibit 4
Allocation of WSF Terminal Costs to the Service Areas

	San Juans	North Sound	Central Sound	South Sound
Clinton	0%	100%	0%	0%
Keystone	0%	100%	0%	0%
Port Townsend	0%	100%	0%	0%
Fauntleroy	0%	0%	0%	100%
Seattle	0%	0%	90%	10%
Tahlequah	0%	0%	0%	100%
Vashon	0%	0%	0%	100%
Bremerton	0%	0%	100%	0%
Kingston	0%	0%	100%	0%
Southworth	0%	0%	0%	100%
Bainbridge	0%	0%	100%	0%
Point Defiance	0%	0%	0%	100%
Friday Harbor	100%	0%	0%	0%
Lopez	100%	0%	0%	0%
Shaw	100%	0%	0%	0%
Orcas	100%	0%	0%	0%
Sidney	100%	0%	0%	0%
Anacortes	100%	0%	0%	0%
Edmonds	0%	0%	100%	0%
Mukilteo	0%	100%	0%	0%

The terminal costs for each service area were calculated based on the allocation rate in Exhibit 4 applied to actual FY 2004 costs for the terminals. Then the hourly variable and fixed terminal costs per corridor were calculated by splitting the total cost per corridor into variable and fixed components and dividing these costs by total estimated service hours for each corridor (based on 2004 schedule). See Exhibit 5 below.

Exhibit 5
Calculation of Hourly Variable and Fixed Terminal Costs, 2004

Corridor	Total	% Variable	Variable	Service Hours	Cost/hr
San Juans/International	\$4,847,575	70.0%	\$3,393,303	24,496	\$139
North Sound	\$4,283,827	70.0%	\$2,998,679	22,128	\$136
Central Sound	\$11,167,745	70.0%	\$7,817,421	42,756	\$183
South Sound	\$4,954,335	70.0%	\$3,468,035	27,568	\$126
		% Fixed	Fixed	Service Hours	Cost/hr
San Juans/International		30.0%	\$1,454,273	24,496	\$59
North Sound		30.0%	\$1,285,148	22,128	\$58
Central Sound		30.0%	\$3,350,323	42,756	\$78
South Sound		30.0%	\$1,486,301	27,568	\$54

APPENDIX E: OPERATING COST AND REVENUE ASSUMPTIONS

Variable Terminal Costs

1. For base year 2005, variable terminal costs for each route were calculated by multiplying total annual service hours for a given route by that particular corridor's hourly cost rate (Exhibit 5 above).
2. For the following years, this figure was calculated by adding the number from Step 1 above (plus inflationary increase) to the net new service hours (difference in the service hours from the prior year) multiplied by the costs of the new service, estimated at \$170.00. This number is based on averaging 2004 WSF actual terminal operations across total service hours for the year.

Terminal Labor	\$150.00
Terminal Non-Labor	<u>\$20.00</u>
	\$170.00

Fixed Terminal Costs

Fixed terminal costs are calculated by multiplying the total annual service hours for each route by hourly rate for the service corridor. In the years after 2005, these costs were also increased by inflation.

Vessel Maintenance Costs

There are two components of vessel maintenance costs:

- ❑ Costs for maintaining current vessels in service. Estimated for each route by multiplying the average hourly maintenance rate by the total annual service hours. These costs increase with inflation in subsequent years. The average hourly maintenance rate (\$66.50) is based on averaging WSF's 2004 actual vessel maintenance costs across total service hours.
- ❑ Costs for maintaining those vessels that are not currently in service, but are available should it be necessary to use them. These costs are mainly for engine labor (paid for 24-hour increments), and are calculated by multiplying the number of days per year for maintenance boats by the rate of engine labor for the appropriate vessel class. Vessels in this category are specified by careful planning and can be moved into operation at any time. These costs are allocated to routes based on the annual ratio of service hours for each route to the total system service hours.

Management & Support Costs

Management & support costs (M&S costs) are calculated as a percentage of total operating costs throughout all the years of the analysis. This percentage is calculated by dividing the 2004 actual Management & Support expenditures into 2004 Total WSF operating expenditures (excluding



WASHINGTON STATE FERRIES

Management & Support costs), equaling approximately 20%. This ratio is applied to every route.